

THE WAR'S EFFECT ON FOREIGN COMPETITION

Methods in the Industrial Struggle Now Being Waged Are Not Those of Legitimate Commerce, Are Based Not On the Law of Mutual Benefit but the Law of Force, and Aim Not at Development but at Conquest, Says William C. Redfield.

By William C. Redfield.
Secretary of Commerce.

UNFAIR competition in our domestic trade is forbidden by law, and a tribunal exists where the facts may be determined and proper steps taken to abate the evil where it shall be shown to exist. This, however, does not go to the root of the whole matter. The possibility still exists of unfair competition from abroad in various lines of business of great importance to our industries. This foreign unfair competition, unless prevented, may seriously affect the worst large existing and pending investments of capital, and may mean the displacement from profitable toil of labor now being increasingly employed.

Observe, it is not normal competition of which this is stated, but abnormal competition. We have not in mind the differences in the cost of production produced by any special advantages of location, supply, management or equipment or other natural economic or industrial element. These conditions in the long run balance one another, a favorable fact which may exist in one country or place being offset by a different favorable fact found elsewhere.

The competition of commerce in its normal phases is a spur to keen minds and a benefit to the public. Courageous industrial warriors do not fear the contest on anything like equal terms. We are dealing, however, with something quite different from this, with a type of the industrial struggle which is not helpful, nor meant to be so, but which is in its essence, destructive, intended to put out of being the forces opposed to it in order that the victor may exploit the field at will over the remains of his competitor. The methods used in this warfare are not those of legitimate commerce, nor are they based upon the law of a mutual exchange for mutual benefit. They are, on the contrary, those of the law of force. They represent the destructive power of industry used as a weapon of commercial offence. They aim not at development but at conquest.

Different views are held by thoughtful men as to the effect of the war upon normal foreign competition. Some say that the return of the armies to industry, with the eager search for

employment, will coincide with the necessity for regaining markets in such a way that low wages will follow, with consequent diminished cost of production, and that the industries will sell at narrow margins in order to regain their place in the sun. Hence it is argued the competition arising from necessity will be peculiarly severe.

History is not wanting in illustrations of the difficulties in which nations find themselves when attempting to restore the ravages of war. In Carlyle's "Frederick the Great" the chapter entitled "The Repairing of a Ruined Prussia" is a case in point. We need not go far afield, however, to find an example. There is one in our own land. Our honored sister Commonwealth of Virginia gave with rare devotion her sons and her treasure fifty years ago to a cause in which her heart and conscience were enlisted. The course of events made her soil the battleground in a particular sense of the great contest between brethren. Because of this she suffered sadly; and while we are thankful that she has taken again her prominent and honorable place among our sisterhood, there are some who will not easily forget what she suffered for the cause to which she willingly gave her best, and the patient, slow progress of recovery through which she has successfully passed. Consider, however, whether her economic condition was or could have been such soon after the close of the war between the states that in any sense she could have quickly become a dangerous competitor in a peaceful commercial contest with any of the other states associated with her in our common Republic. Her sons were slain, her funds were lost, her lands were ravaged, her agriculture and industry sadly injured, if not destroyed. It was inevitable that time and self-sacrifice and patient toil, projected through years, should be taken for the recovery in which we all now rejoice.

SLAUGHTER IS IMPARTIAL.

This is not, of course, a precise parallel to conditions abroad, though to some extent and with different relations in different places the comparison is not seriously incorrect. Certainly the great industrial powers are using their credit to the full, and in large part wast-



William C. Redfield, Secretary of Commerce, Who Foresees Industrial Trouble from Unfair Competition Abroad.

"Great industrial powers are using their credit to the full and in large part wasting it in war."

"Shrapnel and shell are no respecters of persons. Employer and workman are impartially slaughtered."

"It is better to get into industrial preparedness than to worry about ills we know not of."

"Unfair competition must be restricted in its operation toward us while the action is yet on foreign soil."

"The existence of a sufficient American source of supply is an insurance against loss."

The Secretary of Commerce Suggests Measures for Preventing Foreign Monopolies from Getting Control of American Markets by Deliberately Using Accumulations of Years as a Fund with Which to Destroy American Industry.

ing it in war; are accumulating a burden of debt from which they would shrink in any less serious emergency; are laying upon the future a legacy of heavy taxation, while at the same time consuming the wealth from whose earnings alone taxes can be paid.

The shrapnel and the shell are no respecters of persons. The employer and the workman, the trained mind and the skilled hand, are impartially slaughtered. Were there no financial loss or future fiscal burden to be borne, the human loss would itself be serious and far-reaching in its effect upon the productive power of the warring nations. A hint of this is given in the fact that up to April 30 last nearly 42 per cent of the membership of the German Central Union, representing forty-eight trades, had been enlisted in the war. It is well known that the industrial workers of other nations have made similar sacrifices for their respective countries.

The war is not over. The slaughter continues. The economic waste goes on. The localities in which the actual fighting progresses have changed and may change again. More than one factory has been destroyed. Others may be. No one can say of any of the countries concerned even that the factories whose competition he fears will have a physical existence when the war is over. It is better far to get into industrial preparedness, thoughtfully dealing with the facts we have rather than to worry about the ills we know not of.

There is, however, a danger of another kind against which we ought to be prepared, and soon. When the war shall close, the energies of the nations will be bent upon recovery. The control of railways, the guidance of chambers of commerce, the whole public organization, will still exist and will be put to work. This is true also of those semi-public or publicly fostered organizations which guide and control great industries in some lands. Where such an industry needs to recover a great market and where the power of the government and the publicly-owned transportation is available in its aid we may be sure all those means will be used. The growth of American industries which may menace large markets hitherto controlled from abroad will not be well-

comed; aye, will not be permitted if it is possible to prevent it. We may be perfectly sure that in cases of this kind both public and private powers will be strained to their utmost not only to recover lost markets but to prevent the dominance of any markets by other than themselves. The surrender of those markets will be resisted to the full, and every stratagem of industrial war and every means of applying commercial force will be used to prevent that surrender. Whatever ingenuity and experience can suggest will be tried. We must expect it. We must prepare for it. It shall pass the margin of fair competition, it shall seek through ruthless force to exert or even to attempt to exert a monopolizing power upon any phase of our commerce we ought to prevent it, whencesoever it may come.

Few men in any land would question the right, nay, the duty, of restraining by means of the public power the kind of competition of which I speak. The advocate of the wider freedom of trade would hardly argue to the contrary.

The question then may be said not to be whether we shall prevent such assaults, but how we shall prevent them, while at the same time welcoming, indeed promoting, the normal ebb and flow of commerce between our land and all others, and providing for our own people the security against exaction which a reasonable competition insures.

Various remedies have been suggested to control what is called "dumping." Canada uses one method, Australia another. Several have been suggested in our own land. An "anti-dumping" clause was introduced by Mr. Underwood in the tariff act submitted to the House of Representatives April 21, 1913 (53d Cong., 1st sess.; H. R. 3321; R. p. 215). My own preference is not to deal with the matter as an economic one; not as a hurtful business transaction, to be restrained, but rather as an attempted wrong, to be forbidden. I prefer, therefore, to remove it wholly from the field of tariffs and to deal with it if possible by a method to which there are not such disputed reactions.

Continued on fifth page.

The Hell Gate Arch Becomes a Bridge

By Edward Alden Sewell.

IT SPANS Hell Gate. It became a bridge on a recent blustery noon, when noiselessly the two mighty steel arches locked. Bolts were shot into place and an arch was established which, barring cataclysmic disaster, will outlive every man, woman and child in the world to-day, as well as their ancestors, even to untold generations.

Perhaps never in human history has a mechanical triumph of such magnitude been launched with so little fanfare. One might almost think the occasion of setting together the vastest steel arch in the world might merit the demolition of a champagne bottle or some one's reading off a speech or at least waving a flag. But instead the rain poured down drearily; there was gusty wind whipping this way and that; the men merely labored on till the task was completed. When the twin gauges on the hydraulic jacks registered zero, thus signifying that all strain was removed from the slender hitches, some one shouted something down to somebody on the steps of the resident engineer's office at the foot of the Long Island arch-pier. That was the extent of the Hell Gate celebration.

The great arch was self-supporting! At noon the leaves touched and the bolts were sped. By the middle of the afternoon the very last ounce of compression was shifted to the four steel shoes on which the lower chords of the arch rest. The huge jacks were abandoned. Their usefulness, so far as this structure is concerned, was all spent. Perhaps there will be need of them elsewhere some day. When a bridge is swung out over the North River it may be. The hydraulic jacks are the biggest ever constructed. Their dignity wouldn't brook employment of less significance than that from which they are thus newly released.

WHAT IF SOMETHING SHOULD GO WRONG?

At dawn of the bridge's birthday a strip of sky registered itself between the extremities of the end panels for any one peering underneath, up or down the East River, a strip of sky about four inches and a fraction wide. During the morning this celestial hyphen gradually diminished. At noon one of the engineers came quietly into the chartroom and said the lower chord was joined, where it had so long described a broken arc. A few men sat about the stove eating their lunches. But there were less fortunate engineers high up in the rain, who could not at this crucial time abandon their posts for midday refreshment. There was a kind of dogged heroism displayed up there. However, even down in the warm, dry chartroom, where sandwiches and onions and iced milk were in order, everybody talked shop. At Hell Gate all that stormy October day there was no talk but of the beautiful piece of mechanism into which men had put their very hearts.

All day there was a quietly repressed tension. Your mechanical engineers are not hysterical folk. Verbal communication bore the most stolid stamp of regularity. Men went about their business in quite the prescribed manner. But out there, springing sheer from island to island, was a structure which quivered in the balance. Suspension diminished

slowly, and when the slack was all out what if—what if—something should go wrong with the granite-faced piers? Of course, nothing could happen. The piers rested on hard sub-surface rock. They were like rock themselves. And yet—

EVERYTHING PREDICTS SUCCESS.

"You know," said one of the keen-eyed engineers, buttoning on a great yellow rain-shedder and preparing to go up onto the slippery back-stay, "computations in every department have been made so exhaustively that failure now would be utterly impossible."

But he pulled down his rubber hat and went out, looking alert and highly keyed.

Everything predicted success. Not a single iota of the mighty design had gone unconsidered. In one corner of the chartroom hung an impressive row of blueprint drawings. Upon these much thumbed sheets might be traced in all their beautiful intricacy of detail The Bronx and Ward's Island viaducts, the Long Island and Ward's Island tower bases, posts, diagonals and hangers, shoes, shoe-covers, springer pedestals, top-struts and sway bracing, top laterals, stringers, railings, floor beams, floor laterals, track ties, portal struts. Upon these vital sheets was outspread the story of the bridge as it should read. Outdoors in the rain and the wind stood the great arch itself, where the story was repeated up to a certain point with exquisite fidelity. In a few months the story will be completed.

But up on the towers the engineers in charge of the reeling jacks were a little nervous, in spite of all the reassuring checks which might be established between the actual structure and the charted specifications. There is always the chance of a jack's slipping. The hitches were carefully shimmed or blocked up, so that should anything go wrong in the hydraulic department the leaves could not actually crash together. Plates were slipped out by quarter inches. All the same, there was a certain element of anxious superstition in evidence up there on the temporary steel towers.

At last the restless little needles in the hydraulic gauges stood permanently still. After the arch was entirely self-supporting, of course, there wasn't an even latent suspicion of ill-fortune abroad in the camp. The arch stood brave and free. The piers stood firm as the rock on which they repose.

"We knew when the plans were perfected, years back, that all this would be quite possible, you know," said the engineer who had previously talked about computations.

But the spirit of universal relief was quite undeniable. The little company of expert mechanics got themselves into dry clothes. Some one began humming light opera. Talk was

The Vastest Steel Span in the World Meets Across Hell Gate with No Fanfare, but the Poetry of Repressed Tension to Usher It in as the King of Its Kind.

still shop-talk. It was shop-talk all the way round Ward's Island to Manhattan in the company's little stubby launch. But it was talk edged with blitheness now. One man was laughing over a bet he had won. A doubting Thomas among them had dared to prophesy that the bridge pier on Ward's Island might give an account of the depth (120 feet) to which necessity carried it rockward. Tests proved the pier utterly

sound. Some one else was chuckling as the men clambered up onto a Manhattan dock and splashed happily off toward the surface car.

"It's finished six weeks ahead of schedule," said he.

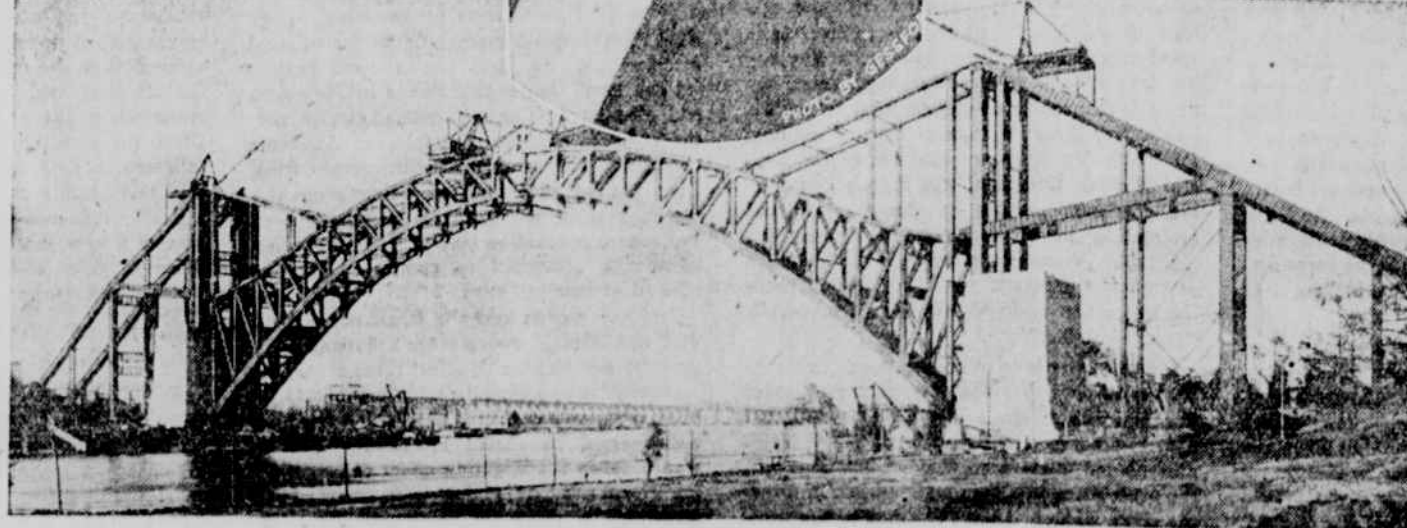
"Yes," agreed the man walking along beside him; "we figured on Thanksgiving Day."

So the Hell Gate arch was abandoned, though lovingly, to rain and the descending dark. The celebration was over.

Whose genius has guided this vast project? Gustav Lindenthal's. Under this master mechanic's direction all the de-

signs have been worked out. At first Mr. Lindenthal was appointed consulting engineer and architect for the New York Connecting Railroad enterprise. But later, as the time of actual construction drew close, he was made chief engineer and put in charge. The Hell Gate bridge is his—so far as glory is concerned.

Intrinsically—though this is an item of unimportance, of course, and scarcely to be mentioned in the same breath with aforesaid glory—this bridge is the most conspicuous item of property owned by the New York Connecting Railroad, and is only a link in the brilliant chain of construction designed to connect the Pennsylvania and the New York, New Haven & Hartford systems. A midge road, certainly. Yet what a brave spectacle of engineering! Incidentally, it is proving probably the most costly road in the world, per mile of line. Difficult construction features combine with the high value



Gustav Lindenthal, chief engineer, and the bridge which is one of the greatest mechanical triumphs.

of real estate traversed to bring this about.

Line construction divides itself into two parts. The northern part, which includes the mammoth Hell Gate bridge, has a length of three and one-half miles. It is called the East River division. The southern part involves railroading of six and one-half miles. Two thirds of the \$30,000,000 estimate of cost is eaten up by the tiny East River division. Such bridges and such viaducting cost.

The New York Connecting Railroad routes thus: At 141st Street in The Bronx it descends the regular New York, New Haven & Hartford bed, gradually diverging in alignment and grade until it crosses Bronx Kill by means of a two-span steel structure called a bascule bridge. This is a bridge which will ultimately be provided with machinery so that it may be raised and lowered in consideration of municipal requirement. The line swings across Randall's Island, carried on a high viaduct of steel girders resting on concrete piers. Between Randall's and Ward's islands Little Hell Gate is spanned by a quadruple steel structure. Thus the great Hell Gate arch is reached—the arch christened by rain, and which will spring through centuries. Its eastern pier inhabits Astoria; and thence the line sweeps off, on viaducts of descending grade, over the marshes of Long Island.

The road is an inspiring text book on mechanics. But Hell Gate flaunts the marvel. This splendid arch is a poem. How James McNeill Whistler would have adored etching it!

THE ARCH IS A POEM.

The span is 1,016 feet and 10 inches, making it by far the longest arch ever designed or constructed. When the thing was first whispered, several years ago, engineers shook their heads. The usual types of bridges for a span of a thousand feet could not be adopted on account of the curved approaches, preventing the use of the suspension type, and also because the pronounced aesthetic dictates of the city authorities firmly forbade the throwing of a cantilever bridge. The cantilever has harsh lines. It is scarcely a thing of beauty. The only type left was the arch. So an arch was decided upon. There was no approximate precedent to follow. The engineers had to plunge boldly into vast new oceans of computation.

The feasibility of the structure, it seems, is really due to a pair of ideas generated in the brain of the chief engineer. One was the use of a special steel for the principal members, having far greater strength than the steel used in former bridges. The other was the invention of a new type of cross section which made it possible to employ the heaviest members ever fabricated. The bottom chord members of

the arch have a cross section of 1,325 square inches. They are eleven feet high and six feet wide, and are divided by a horizontal partition into two compartments running the entire length of the structure. These compartments are necessary for the use of workmen during erection and for subsequent use by painters and inspectors. In each of these compartments men can stand and work with ease.

There is romance in the heroic bulk of the ingredients. The weight of a single chord panel is a hundred and eighty-five tons. These members are without equal in the history of steel fabrication. During transportation of such colossi as these, special routing had to be figured out because of the limited clearance of bridges and tunnels along the ordinary lines of freighting.

The entire arch—now that it is thrown upon its own resources and is no longer upheld by the hitches—rests on four huge castings called shoes. Each one of these castings weighs 250 tons. They are the largest shoes on record.

At one stage in the construction programme it was necessary to raise the entire arch a distance of twenty-two and one-half inches. This was accomplished by simply touching the levers of the hydraulic jacks on the towers. These pretty little nursery toys have a lifting capacity of 2,500 tons.

But the enforced methods of construction are what deserve the most admiring attention of all. On account of the vast span and height of the structure, the treacherousness of currents in the Hell Gate channel and the prohibition to obstruct navigation in any respect, it became necessary to think out some way of throwing the arch without recourse to any false work at all. Mr. Lindenthal puzzled over it assiduously till at length he concluded the span must be constructed by halves, each half being built out from a tower and supported by a hitch connecting it to temporary steel work on the leeward side, set above and behind the towers. This temporary device, called the backstay, balanced the weight of the leaves prior to their union. It is going to be wrecked at once now. But the sagacity of the builder did not stop short at solving the problem. It would be a great pity to scrap all the material thus employed. So the members were fabricated so as to permit their being ultimately transferred to viaduct construction and floor work on the bridge itself.

SLIM STEEL RIBBONS HOLD 18,000 METAL TONS

The hitches extend from the tops of the towers to the middle point of each steel leaf. At noon on the eventful day these hitches were relieved of strain for the first time in many months. They had to sustain a weight of about 18,000 tons of metal. So slender—mere ribbons of steel—yet they held their burden faithfully.

The entire weight of the loaded bridge will be 38,000 tons. The load carried per lineal foot will be twelve tons, while twenty-six tons per lineal foot will be the dead weight.

Since the arch was commenced, at the beginning of the year, two corps of engineers have been kept busy in the field with surveyors' instruments and especially designed scientific devices for measuring all movements and strains during construction.